

Serial No.: 10/734,682

Confirmation No.: 1223

Filed: 12 December 2003

For: SAMPLE MIXING ON A MICROFLUIDIC DEVICE

Amendments to the Drawings

The attached sheet of drawings includes changes to Figure 8. This sheet replaces the previously amended sheet containing Figures 7-8.

Attachment: Replacement Sheet

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Remarks

The Final Office Action of 21 February 2008 has been received and reviewed. Claims 1-10 and 30-38 are pending. Reconsideration and withdrawal of the rejections are respectfully requested as discussed below.

Drawing Amendments

FIG. 8 has been amended to include reference lines and numbers "240, 260a, and 260b." Support for these amendments may be found in the application as filed at, e.g., page 10, line 30 to page 11, line 19 and in Figure 7.

Entry and consideration of these drawing amendments are respectfully requested.

Drawing Objection

The drawings were objected to under 37 CFR § 1.83(a). In the amended Figure 8 submitted herewith, Applicants have added reference numbers 240, 260a and 260b.

Reference number 240 indicates the location of the process chamber 240 in both the plan view of Figure 7 and the cross-sectional view of Figure 8.

Reference number 260a indicates the location of one mixing chamber in the plan view of Figure 7 and the cross-sectional view of Figure 8.

Reference number 260b indicates the location of another mixing chamber in the plan view of Figure 7 and the cross-sectional view of Figure 8.

Applicants respectfully submit that the figures do depict that a portion of the mixing chamber (260a and/or 260b) is located between the process chamber (240) and the second major side (219) of the sample processing device.

Reconsideration and withdrawal of this objection are, therefore, respectfully requested.

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The 35 U.S.C. § 103 Rejection

Claims 1-10 and 30-38 were rejected under 35 U.S.C. § 103 as being unpatentable over Anderson et al. (U.S. Patent No. 3,873,217) in view of Kellogg et al. (U.S. Patent No. 6,302,134). Applicants respectfully traverse this rejection.

To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 U.S.P.Q. 580 (C.C.P.A. 1970). Applicants respectfully submit that the combination of Anderson et al. in view of Kellogg et al. does not teach or suggest all the elements of claims 1-10 and 30-38 as required for *prima facie* obviousness.

For example, nothing is identified within the disclosure of Anderson et al. that discloses "a valve on a distal side of the process chamber" in combination with "a mixing chamber comprising a mixing port, wherein the mixing port is located on the distal side of the process chamber" (emphasis added) as recited in independent claims 1 and 30. Nor has any portion of Anderson et al. been identified as disclosing "a normally-closed valve on a distal side of the process chamber" in combination with "a mixing chamber comprising a mixing port, wherein the mixing port is located on the distal side of the process chamber" (emphasis added) as recited in independent claim 10.

In other words, independent claims 1, 10, and 30 describe a process chamber having both a valve and a mixing port, located on the distal side of the process chamber.

In contrast, the device described in Anderson et al. includes a loading cavity 3 (indicated as equivalent to the claimed process chamber in the Final Office Action) that includes only a single port, i.e., passageway 12, on its distal side. As such, Anderson et al. fails to teach or suggest the combination of a valve and a mixing port on a distal side of a process chamber as required for *prima facie* obviousness of independent claims 1, 10, and 30.

It is asserted that "Anderson fails to teach wherein the mixing port comprises a valve" and that "[i]t would have been obvious to one having ordinary skill in the art to provide a valve to the mixing port in the system of Anderson to achieve the predictable result of preventing premature mixture and control fluid flow through the device." *Final Office Action*, 21 Feb. 2008,

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pages 5 & 6. From these assertions, it appears that the claims are being improperly constructed. The valve of independent claims 1, 10, and 30 is not a part of the mixing port. As support for this position, Applicants note that dependent claims 8 and 37 recite that the mixing port comprises a valve. This valve, however, cannot be properly interpreted as being the same valve as recited in the independent claims 1, 10, and 30 because, e.g., the valve recited in claims 8 and 37 would then be a second valve in addition to the valve recited in either claim 1 or 30.

Further, it is asserted that "[i]n Anderson when the exit port (not labeled see figure 1) of the process chamber is open, rotation of the sample processing device about the axis of rotation moves the sample material out of the process chamber." *Final Office Action*, 21 Feb. 2008, page 5. The independent claims, however, recite that, when the valve is open, rotation of the device "moves the sample material out of the process chamber and the mixing chamber" (emphasis added). If the valve recited in the independent claims was part of the mixing port (as asserted in the *Final Office Action*), then rotation would merely move the sample material into the mixing chamber – not out of the mixing chamber as recited.

It is also asserted that ". . . the above limitations are functional and are of no patentable significance in apparatus claims. The device of Anderson meets all the claimed structural elements and thus is capable of performing the functional limitations." *Final Office Action*, 21, Feb. 2008, page 5. As described above, however, the device of Anderson would not be capable of performing such functional limitation, i.e., no such port in Anderson would be capable upon opening of allowing the movement of the sample material out of both the process chamber and the mixing chamber as described. As a result, the device of Anderson et al. is not capable of performing the functional limitations as asserted.

Further, "[a]ll words in a claim must be considered in judging the patentability of that claim against the prior art." M.P.E.P. § 2143.03 (*quoting In re Wilson*, 424 F.2d 1382, 1385, 165 U.S.P.Q. 494, 496 (C.C.P.A. 1970)). Anderson et al. does not, however, disclose a mixing chamber that is "located between the process chamber and the second major side of the sample processing device" as recited in independent claim 10 and dependent claim 6. It is asserted that "at least a portion of mixing chamber (2) is located between the process chamber (3) and the

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second major side (not labeled see figure 1)." *Final Office Action*, 21 Feb. 2008, page 5. FIG. 2, a cross section of FIG. 1, shows that no portion of the cuvette 2 is located between a major surface of either top plate 6 or bottom plates 7 and the loading cavity 3. Instead, the loading cavity 3 and the cuvette 2 of Anderson et al. are merely located next to each other.

The addition of Kellogg et al. does nothing to remedy these deficiencies already present in Anderson et al. (e.g., Kellogg et al. has only been presented to teach "a valve to the mixing port in the system of Anderson").

For at least these reasons, Applicants respectfully submit that independent claims 1, 10, and 30 are nonobvious over Anderson et al. in view of Kellogg et al. Further, claims 2-9, and 31-38 are also nonobvious over Anderson et al. in view of Kellogg et al. because such claims are either directly or indirectly dependent on claims 1 or 30, and because these claims recite additional elements that may further support patentability. Reconsideration and withdrawal of this rejection are respectfully requested.

Claimed Valve (formerly "exit port")

It was previously asserted that the exit port of Anderson et al. is "not labeled see figure 1." *Office Action*, 5 Sept. 2007, page 6. In Applicants' Amendment and Response dated 5 Dec. 2007, Applicants respectfully requested clarification as to what feature in Figure 1 of Anderson et al. is being equated to the claimed valve on a distal side of the process chamber. That request has not, however, been unaddressed and it is again asserted in the present Final Office Action that the exit port of Anderson et al. is "not labeled see figure 1." *Final Office Action*, 21 Feb. 2008, page 4. As a result, it is still unclear as to what feature depicted in FIG. 1 of Anderson et al. is equivalent to the claimed "valve" (formerly "exit port") of the process chamber recited in independent claims 1, 10, and 30.

As described above, however, cavity 3 in Figure 1 of Anderson et al. only has one feature located on its distal end side, i.e., passageway 12 (indicated as equivalent to the claimed mixing port in the Final Office Action). **If this rejection is maintained, clarification is requested as**

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to what feature in Figure 1 of Anderson et al. is being equated to the claimed valve on a distal side of the process chamber.

Summary

It is respectfully submitted that the pending claims are in condition for allowance and notification to that effect is respectfully requested. The Examiner is invited to contact Applicants' Representatives at the telephone number listed below if it is believed that prosecution of this application may be assisted thereby.

Respectfully submitted

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CERTIFICATE UNDER 37 CFR §1.10:

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The undersigned hereby certifies that this paper is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR §1.10 on the date indicated above and is addressed to **Mail Stop AF**, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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